JPRS 55320
1 MAR 72
UDC: 614.777.648.13

THE PROBLEM OF DETERGENTS IN WATER HYGIENE AND SANITARY PROTECTION OF RESERVOIRS

[Article by Ya.A. Mozhayev, V.P. Osintseva, O.I. Yurasova, Yu.V. Lin'kov, N.N. Litvinov, L.N. Kopyrina; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 1, 1972, pp 42-47]

In the last few years a new branch of the chemical industry, production of synthetic surface active substances (SAS), has gained development in several countries, including the Soviet Union. These substances, which are often called detergents (from the Latin word, detergere, to purify), are used extensively in different branches of the economy, but especially in the production of synthetic washing agents. The latter products are intensively replacing the old traditional washing agent, soap, which appeared long before our times. The great demand for synthetic SAS is due first of all to their high cleaning properties. They have a good cleaning action not only under ordinary conditions but also in an acid medium and (unlike soaps) in hard and even salt water. Washing agents based on synthetic SAS destroy and discolor material less than soap, and they have a washing action even at a water temperature of 20-30° (S.M. Loktev, 1964).

Unlike the production of soap, no alimentary fats are needed to manufacture such agents, and this is important from the standpoint of the economy.

However, industry's interest in synthetic SAS is not solely related to their washing properties. These agents have revealed a number of other valuable properties: emulsifying, wetting, they improve technological processes and the quality of production, so that they could be used in the petroleum, construction, chemical, textile, pharmaceutical, and other industries, as well as in agriculture. The economic desirability of using SAS is the reason for the consistent increase in production thereof; considerable expansion of such production is expected in the near future.

The manufacture and extensive use of SAS cannot help but result in appearance of these agents in the environment, especially in reservoirs of water, including sources of domestic and drinking water. At the present time, of the chemicals that pollute water reservoirs, SAS are perhaps the most widespread,

LITVINOV, O.P.

AA0046281

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent, 9-70

244347 THERMAL PUMP REFRIGERATION INSTALLATION with a compressor, and heat exchangers working alternately as evaporator and condenser in the heating and cooling regimes, switched by a reversible valve, differing in the receiver being filled during the cooling regime with liquid cooling agent after the condenser, and in the heating regime, the cooling agent is forced out, being throttled by the vapour-liquid mixture supplied to the receiver from above, so as to increase the quantity of cooling agent in circulation. This improves economy. In the cooling regime the compressed vapours from the compressor come via valve 4 to heat-exchanger 2, working as a condenser, to the

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AA0046281

receiver, and via a throttling device the liquid cooling agent goes into heat-exchanger 3 working as an evaporator. In the cooling regime liquid cooling agent accumulates in the receiver from the condenser, reducing the quantity of circulating cooling agent. In the heating regime, the compressed vapours of the cooling agent are directed from the compressor via the valve into heat-exchanger 3 for condensation, and then via the throttling device the vapour-liquid mixture goes into the receiver, forcing out the liquid cooling agent there, and goes on to heat-exchanger 2 working as the evaporator. In the heating regime the quantity of cooling agent circulating in the system is increased.

30.3.68 as 1229571/24-6 LITVINOV O.P. (10.10.69)
Bul. 18/28.5.69. Class 17a, Int. Cl. F 25b.

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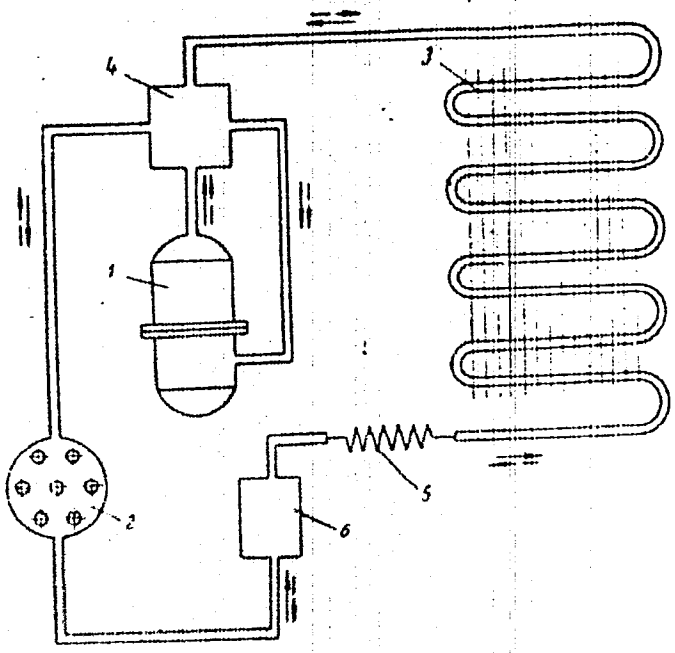

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19781426

USSR UDC: 621.375.82

KARPIKOV, I. I., LITVINOV, P. O., LYASHOK, A. P.

"Influence of Laser Radiation on Electrical Parameters of Metal-Oxide-Semiconductor Structures"

Poluprovodn. Tekhn. i Mikroelektronika. Resp. Mezhved. Sb. [Semiconductor Technology and Microelectronics. Republic Interdepartmental Collection], No. 4, 1970, pp 105-107, (Translated from Referativnyy Zhurnal Fizika, No. 8, 1970, Abstract #8D1145, by the authors).

Translation: The influence of laser radiation on the characteristics of MOS (metal-oxide-semiconductor) devices is discovered. In the case of MOS transistors, devices of n-type silicon are most strongly affected. The discharge current is increased by 2-3 times. For MOS variactors, a decrease in capacitance and an increase in leakage current are noted after irradiation. The changes which develop are stable and irreversible. The presumed nature of the changes is discussed. 8 biblio. refs.

Semiconductors and Transistors

USSR UDC: 621.382.012

LITVINOV, R. O., Institute of Semiconductors, Academy of Sciences of the UkrSSR

"Effect of Strong Stimuli on Those Characteristics of Semiconductor Devices Which are Sensitive to Surface State"

Kiev, Poluprovodnikovaya Tekhnika i Mikroelektronika. Resp. Mezhved. Sb., No 7, 1972, pp 3-17

Abstract: This brief survey is an attempt to systematize data on the surface properties of semiconductor devices subjected to the influence of active outside disturbances, and on the physical models and mechanisms responsible for the accompanying changes in characteristics. Specifically, the article deals with the influence of ionizing radiation, surface bombardment by ions, types of heat treatment, and laser emission on the current-voltage curves of diodes, the gain of transistors, the sink-gate curves of MDS transistors, stability and so forth. The relation between the characteristics of the semiconductor devices and the surface state of the semiconductor material is considered as well as the change in the surface state resulting from the above-mentioned strong stimuli.

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USSR

UDC 537.312.5

KARPIKOV, I. I., LITVINOV, R. O., and LYASHOK, A. P.

"Effect of Laser Radiation on the Electrical Parameters of MOS Structures"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 4, 1970, pp 105-107

Abstract: The purpose of this article is to investigate the effects of laser radiation, used for welding, perforating, and resistor adjusting in integrated circuits, on the semiconductor devices going into these circuits. Specifically, the article studies laser-made metal-oxide-semiconductor transistors of the planar structure, using n- and p-type silicon, as well as MOS varactors made of n-type Si. The laser used as the radiation source in the experiments was of the "Luch-1" type operating in the pulse mode, in which the active material was ruby with a 0.05% admixture of Cr. The MOS structures were irradiated with an unfocused beam whose energy was insufficient to damage the target surfaces. Changes of transient characteristics in the MOS transistors were investigated; the varactors were investigated for changes in the voltampere characteristics and in the capacitance as a function of the voltage applied in the cut-off direction.

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1/2 024 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--CHANNEL CURRENTS ON THE SURFACE OF SILICON P-N JUNCTIONS -U-

AUTHOR-(02)-LITVINOV, R.O., LYASHENKO, V.I.

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(4), 599-605

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SILICON SEMICONDUCTOR, PN JUNCTION, VOLT AMPERE CHARACTERISTIC, SPACE CHARGE DENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1135 STEP NO--UR/0185/70/015/004/0599/0605

CIRC ACCESSION NO--AP0136555

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136555

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF CHANNELS FORMED ON REAL SI P-N JUNCTION SURFACES DUE TO THE VARIATION OF THE SURFACE POTENTIAL ON THE REVERSE CURRENT VOLTAGE CHARACTERISTICS OF THE JUNCTION WAS STUDIED EXPTL. THE CHANNELS WERE FORMED BY THE APPLICATION OF AN EXTERNAL ELEC. FIELD, BY CHANGING THE GASEOUS MEDIA, OR BY LOW TEMP. HEATING. THE EXPTL. RESULTS WERE COMPARED WITH THEORETICAL CALCNS. MADE ON THE BASIS OF SEVERAL INDEPENDENTLY MEASURABLE CHANNEL PARAMETERS. POSSIBLE MECHANISMS CONSIDERING THE LOCALIZATION EFFECT OR THE POSSIBILITY OF INCREASED CONCN. OF RECOMBINATION CENTERS WITHIN THE SURFACE SPACE CHARGE REGION OR THE NONEQUIL. CONDITIONS IN THE CHANNEL ARE SUGGESTED TO FIND GOOD AGREEMENT BETWEEN THE EXPT. AND THE THEORY.

FACILITY: INST. POLUPROV., KIEV, USSR.

UNCLASSIFIED

TECHNICAL TRANSLATION

FSTC-HT-23-2015-72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV, SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: I. A. DERYUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY IMENI T.G. SHEVCHENKO

Translated for FSTC by ACSI

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Approved for public release: Distribution unlimited.

Miscellaneous

USSR UDC 669.88.536.423.1

ZEYGARNIK, YU. A., Candidate of Technical Sciences, and LITVINOV, V. D., Engineer, Institute of High Temperatures of the Academy of Sciences USSR

"Some Problems of Boiling Alkali Metals"

Moscow, Teploenergetika, No 2, Feb 73, pp 27-33

Abstract: The prospects for the construction of atomic power plants with fast neutron reactors using liquid sodium as the heat carrier and also the development of space power installations with machine transformation of energy, liquid metal MHD installations, and heat pipes have evoked great interest in the hydrodynamics and heat exchange in two-phase streams of alkali metals. Areas studied are: boiling-p, heat transfer in the case of developed boiling, stability problems in the boiling process, two-phase flow conditions, depression on the heating surface, "dynamic" boiling, etc. Experiments on heat transfer are discussed which were carried out at the Power Engineering Institute imeni G. M. Krzhizhanovskiy, the Central Scientific Research Planning and Design Boiler and Turbine Institute imeni I. I. Polzunov (heat transfer in the transition zone where a drying of the surface layer takes place), the Heat Transfer and Fluid Mechanics Institute, Standford, et al. Experimental heat transfer data for the boiling potassium in tubes are given. Eleven figures, six formulas, twenty-four bibliographic references.

1/1

1/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--INVESTIGATION OF HEAT EMISSION DURING BOILING OF LIQUID SODIUM IN A VERTICAL TUBE -U-
AUTHOR-(03)-PETUKHOV, B.S., ZEYGARNIK, YU.A., LITVINOV, V.D.

COUNTRY OF INFO--USSR

SOURCE--MINSK, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY, ENERGETIKA, PP 102-109
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LIQUID METAL BOILER, HEAT TRANSFER RATE, SODIUM, BOILING, METAL TUBE, TWO PHASE FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1662 STEP NO--UR/0143/70/000/000/0102/0109

CIRC ACCESSION NO--AT0123494
UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0123494

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EXPERIMENTAL INVESTIGATION OF HEAT EMISSION DURING BOILING OF SODIUM IN A VERTICAL TUBE 3.54 MM IN DIAMETER AND 745 MM IN LENGTH WAS CARRIED OUT. THE INVESTIGATED RANGE OF HEAT FLOWS WAS (200 DIVIDED BY 705) TIMES 10 PRIME3 W-M PRIME2, WEIGHT VAPOR CONTENT UP TO 60PERCENT, VAPORIZATION RATE UP TO 460 M-SEC, AND PRESSURE BEYOND WORKING RANGE 0.75-0.8 BAR. EXPERIMENTS WERE PERFORMED WITH FEEDING INTO THE INLET OF THE WORKING SECTION OF A SMALL AMOUNT OF INERT GAS, WHICH ENSURED THE FORMATION OF ANNULAR FLOW REGIME.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--METHODS FOR INCREASING THE RELIABILITY OF BOILING, LIQUID METAL LOOPS -U-

AUTHOR-(02)-ZEIGARNIK, YU.A., LITVINOV, V.D.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(1), 222-4

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--STAINLESS STEEL, ARGON, SODIUM, LIQUID METAL BOILING, NUCLEATE BOILING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0769 STEP NO--UR/0294/70/008/001/0222/0224

CIRC ACCESSION NO--AP0107311

UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107311

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STUDY WAS CONDUCTED ON LIQ. NA IN A CLOSED LOOP OF STAINLESS STEEL (3.54 MM INSIDE DIAM.) TUBES. EFFECTS OF TUBE SURFACE ROUGHNESS, INERT (AR) GAS FILING PRIOR TO EXPT., AND THE CONTINUOUS ADDN. OF AR GAS AT 5-30 M-SEC WAS EXAMD. RESULTS SHOWED THAT INITIATION OF NA BOILING WAS REDUCED FROM SUPERHEATS OF 150-800EGREES TO 15-400EGREES BY AR FLUSHING OF ROUGHENED TUBES PRIOR TO THE EXPT. BOILING WAS UNIFORM AS LONG AS AR GAS WAS PRESENT IN THE TUBE CAVITIES; WITH AR GAS EXHAUSTED NONUNIFORM PULSATING BOILING (CONVECTIVE HEATING) WAS OBSD. CONTINUOUS ADDNS. OF SMALL AMTS. (0.004-0.006 WT. PERCENT) OF AR PERMITTED THE NUCLEATE BOILING OF NA TO PROCEED SMOOTHLY WITHOUT NA LOSS AT HEATING RATES OF (150-500) TIMES 10 PRIME3 KCAL-M PRIME2 HR; THE PHENOMENON OCCURRING IS SIMILAR TO THAT OBSD. BY H. W. HOFFMAN AND A. I. KRAKOVIAK (1964) ON AN ATOMIZED K LOOP.

UNCLASSIFIED

USSR

UDC: 621.375.82

IVANOV, N. P., KRASIL'NIKOV, A. I., LITVINOV, V. F., MOLOCHEV, V. I., NGO-VAN BI, NIKITIN, V. V., SEMENOV, A. S.

"Investigation of the Radiative Characteristics of GaAs Single-Channel Injection Lasers"

Moscow, Issledovaniye izluchatel'nykh kharakteristik odnokanal'nykh inzhektsionnykh lazerov na GaAs. Fiz. in-t AN SSSR (cf. English above. Physics Institute of the Soviet Academy of Sciences), Preprint No 31, 1973, 11 pp, ill., mimeo. (from RZh-Fizika, No 8, Aug 73, abstract No 8D1101)

Translation: A technique for making single-channel semiconductor lasers is proposed and elaborated. High-resistance gallium arsenide doped with iron or chromium was used as the substrate. A layer of tellurium-doped gallium arsenide with dopant concentration of about 10^{18}/cc is grown by the epitaxial fluid method on the substrate oriented along axis |100|. A semi-insulating,high-resistance film 100 μm thick is then grown on the doped layer. The resultant multilayer plate is then split into "needles" a millimeter in width into which zinc is diffused. Laser diodes are made from the needles by the cleavage method. The characteristics of the finished

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USSR

IVANOV, N. P. et al., Issledovaniye izluchatel'nykh kharakteristik odnokanal'nykh inzhektsionnykh lazerov na GaAs. Fiz. in-t AN SSSR, Preprint No 31, 1973

diodes are studied, and their considerable advantages over conventional diffusion and epitaxial lasers are noted.

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USSR

UDC: 621.375.826+539.219.1

LITVINOV, V. F., MOLOCHEV, V. I., MOROZOV, V. N., NIKITIN, V. V., SEMENOV, A. S., and KHATYREV, N. P.

"Light Pulse Transmission Through a Two-Component Semiconductor Medium"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 89-92

Abstract: This brief communication is concerned with the interaction of the radiation from an injection laser and a two-component semiconductor medium. This is defined as a medium which can be used for amplifying or absorbing light, depending on the controlling injection current applied to the semiconductor. The measurements described in the paper were made with a combination light-pulse oscillator and two-component semiconductor made of a single GaAs diode, one of the ends of the planar specimen coinciding with the (110) plane while the opposite end is set at a 10° angle with respect to the first to reduce positive light feedback. A diagram of this arrangement is shown. Measurements were conducted at a temperature of 80° K on specimens in which the oscillator was 0.3 mm long and the two-component medium 2 mm long. Curves for experimental and computed amplitude characteristics of the two-component medium are plotted, and show close agreement.

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1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SELECTION OF OPTIMUM CONDITIONS FOR THE APPLICATION OF COATINGS ON A CONDUCTING WIRE AND CABLE -U-

AUTHOR--LITVINOV, V.G.

COUNTRY OF INFO--USSR

SOURCE--KHIM. MASHINOSTR. (KIEV) 1970, NO. 10, 54-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--WIRE, METAL COATING, ELECTRIC CABLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1214 STEP NO--UR/3162/70/000/010/0054/0059

CIRC ACCESSION NO--AP0136625

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0136625
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A THEORETICAL MATH. DISCUSSION OF FLOW PROPERTIES OF WIRE AND CABLE COATINGS IS PRESENTED FOR THE SELECTION OF OPTIMUM CONDITIONS FOR COATING APPLICATION.

UNCLASSIFIED

USSR

UDC: 681.325.3

SALIN, O. A., ZHURAVIN, L. G. LITVINOV, V. I., KOSTROMIN, I. A., IL'IN, I. A.

"Variable Voltage Amplitude-Digital Code Converter"

USSR Authors' Certificate No 251957, Filed 5 May 1968, Published 30 January 1970 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B271P, by N. V.)

Translation: The converter suggested contains a null-balance device, one input of which is connected to the signal source, while the other is connected to a digital-analog converter connected to a source of standard voltage; a control circuit; distributor and counter, the output of which is connected to a digital-analog converter; and also an additional counter. The output of this last counter is connected to a digital-analog converter; the input, together with the input of the main counter, is connected through a distributor switched by the control circuit to the output of the null-balance device. This increases the speed of conversion. One illustration.

1/1

1/2 030 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INFLUENCE OF POLAR STATES OF PROTONS ON THE PHASE TRANSITION IN FERROELECTRICS WITH HYDROGEN BONDING -U-

AUTHOR-(02)-LEVITSKIY, R.R., LITVINOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(3), 170-6

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PROTON POLARIZATION, HYDROGEN BONDING, PHASE TRANSITION, FERROELECTRIC CRYSTAL, PHOSPHORIC ACID, POTASSIUM COMPOUND, CRYSTAL IMPURITY, TRANSITION TEMPERATURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1055 STEP NO--UR/0185/70/015/003/0470/0476

CIRC ACCESSION NO--AP0136475

UNCLASSIFIED

2/2 030 UNCLASSIFIED

CIRC ACCESSION NO--AP0136475 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF PROTON POLAR EXCITATIONS ("TWINS" AND "HOLES" ON PROTON BONDS) WAS STUDIED ON THE PHASE TRANSITION OF A KH SUB2 PO SUB4 TYPE CRYSTAL. THE CALCN. IS LIMITED TO THE MOL. FILED APPROXN. AN EQUATION WAS OBTAINED FOR THE SPONTANEOUS POLARIZATION AS A FUNCTION OF THE TEMP. BY USING HUBBARD'S METHOD (1964). THE PRESENCE OF IMPURITIES DECREASES THE TRANSITION TEMP. AND THE SPONTANEOUS POLARIZATION. FACILITY: L'VOV. GOSUNIV., LVOV, USSR.

UNCLASSIFIED

USSR

UDC 532.517.4

LAGUNOV, A. S., BAYVEL', L. P., GUSEV, B. A., and LITVINOV, V. K., V. I. Lenin Khar'kov Polytechnical Institute

"Dimensional Distribution of Drops as a Function of Their Residence Time in Turbulent Flow and the Flow Velocity"

Moscow, Doklady Akademii nauk SSSR, vol 207, No 4, 1972, pp 808-810

Abstract: Some results are given in this experimental paper investigating the fractioning process of a liquid by a gas stream. The gas flows in a Venturi and is incident on the liquid through an aerodynamic sprayer. The process occurs in two stages. In the first, the fractioning is done at high relative velocities of liquid and gas; in the second, it is caused by turbulent flow pulsations. The dimensional spectrum of the drops was determined at a comparatively large distance from the intersection point of the liquid and the gas. The experimental equipment was developed by the authors on the basis of the work of K. S. Shifrin, and the experiments described were suggested by A. N. Kolmogorov to clarify the dependence of the dimensional distribution on the residence time in turbulent flow. A diagram of the equipment is given, and

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APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002201820003-3"

USSR

LAGUNOV, A. S., et al, Doklady Akademii nauk SSSR, vol 207, No 4, 1972, pp 808-810

curves of the drop dimension spectra plotted for various values of the gas show that the dimensions depend strongly on the residence time.

2/2

USSR

UDC 621.382.2

DOMANEVSKIY, D.S., LIBOV, L.D., LITVINOV, V.L., LOMAKO, V.M., NOVOSELOV, A.M., RAVICH, V.N., TKACHEV, V.D., UKHIN, N.A.

"Effect Of Radiation On Gallium Phosphide P-N Junctions"

V sb. Radiats. fiz. nemet. kristallov. T.3. Ch.2. (Radiation Physics Of Nonmetallic Crystals. Vol. 3, Part 2--Collection Of Works), Kiev, "Nauk.dumka," 1971, pp 50-53 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B534)

Translation: The p-n junctions were obtained by the method of liquid epitaxy with n-GaP. The epitaxial p-region was doped with O_2 and Zn. Irradiation was done with reactor neutrons and also electrons with 28 Mev energy at temperatures above 50° C. The current-voltage characteristics and the electroluminescent spectra were investigated at room and nitrogen temperatures. After irradiation, the forward branch of the current-voltage characteristics is shifted to the region of smaller voltages (the lifetime of minority carriers is decreased) and subsequently with an increase of the flux -- to the side of the larger voltages (increase of the resistivity of the initial material). After irradiation the intensity of all the spectral bands of electroluminescence are decreased. The

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DOMANEVSKIY, D. S., et al., Radiats. fiz. nemet. kristallov, T.3. Ch.2. (Radiation Physics Of Nonmetallic Crystals. Vol. 3, Part 2- Collection Of Works), Kiev, "Nauk. dumka," 1971, pp 50-53 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B534)

intensity of the red band with a flux decreased approximately 1.5 times more slowly that the green. The spectral composition of the radiation changed after irradiation. The results presented indicate that the change of the electrical and optical characteristics of GaP p-n junctions after irradiation have the same character as in the case of GaAs p-n junctions. 3 ill. 1 tab. 4 ref. I.M.

2/2

USSR

UDC 621.382.2.002:535.376

VIL'KOTSKIY, V.A., DOMANEVSKIY, D.S., LITVINOV, V.L., LOMAKO, V.M., NOVOSELOV, A.M., TKACHEV, V.D., UKHIN, N.A.

"Optical And Electrical Properties Of Irradiated GaAs Diodes (Annealing)"

V sb. Radiats. fiz. nemet. kristallov (Radiation Physics Of Nonmetallic Crystals--Collection Of Works), Vol 3, Part 2, Kiev, "Nauk.dumka," 1971, pp 44-49 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B285)

Translation: The effect was investigated of isochronous annealing on the spectra of radiative recombination of n-GaAs p-n junctions irradiated by fast reactor neutrons. An analysis of the results obtained makes it possible to conclude that during neutron irradiation, the decrease of lifetime is determined by the regions of disorder which are effective centers of nonradiative recombination. 3 ill. 6 ref. N.S.

1/1

USSR

UDC: 621.382.2

LITVINOV, V. L., LOMAKO, V. M., TKACHEV, V. D., and UKHIN, N. A.

"Recombination Radiation Mechanism in Strongly Alloyed GaAs p-n Junctions"

Leningrad, Fizika i tekhnika poluprovodnikov, Vol 4, No 12, 1970, pp 2236-2240

Abstract: There are two explanations of the nature of the movable band observed in strongly alloyed p-n junctions under the application of small bias voltages: one is the model of diagonal tunneling; the other the model of filled zones. The authors investigate these two possible mechanisms by estimating their contribution through the use of their different dependence on the life time of the current carriers. In the experiments described, two types of p-n junction were investigated. The first was developed by the diffusion of zinc in n-type GaAs alloyed with Te; the second by melting tin into p-type GaAs alloyed with Zn. Volt-ampere characteristics and recombination radiation spectra of the two types were measured and plotted at 80 and 300° K before and after irradiation by high-speed neutrons. Immovable bands sometimes observed simultaneously were also studied. The authors express their gratitude to V. P. Smilg for his useful comments.

1/1

USSR

UDC 621.382.2

DOMANEVSKIY, D. S., LITVINOV, V. L., LOMAKO, V. M., SMILGA, V. P., TKACHEV, V. D., UKHIN, N. A., Belorussian State University imeni V. I. Lenin, Minsk

"Radiation Changes in the Voltage-Current Characteristics of Heavily Doped Gallium Arsenide PN Junctions"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 8, Aug 70, pp 1425-1431

Abstract: An investigation is made into the change in electrical characteristics of heavily doped gallium arsenide PN junctions under the effect of irradiation in a mixed (neutron-gamma) field of a reactor and fast electrons with an energy of 28 MeV. In many specimens tunnel transitions are detected in the initial state with the participation of defect levels in the forbidden band. Emission brings about an increase in excess current due to the introduction of radiation defects which produce closely situated levels throughout the entire forbidden band. An increase was observed in the density of states in the tails of the bands due to activation of the electrically inactive part of the dopants under the effect of radiation. In the case of high radiation intensities, there is an increase in excess current in narrow PN junctions due to the disordered regions which appear in the junction.

1/1

USSR

UDC 621.382:621.317.799

KLYUCHANTSEV, S.V., KOLESNIKOV, V.G., LITVINOV, V.M., MOISEYEV, I.A., SERGEYEV, N.M., TALOV, I.L.

"Multiprogram System With Time Sharing For Monitoring Of Parameters And Classification Of Semiconductor Devices"

V sb. Novoye v tekhn. poluprovodn. proiz-va (New Semiconductor Production Technology--Collection Of Works), Voronezh, Voronezh University, 1971, pp 96-104 (from RZh:Elektronika i yeye primeneniye, No 4, April 1972, Abstract No 4B538)

Translation: The paper reports on the development of an automatic system for monitoring and classification of transistors and semiconductor diodes. The following enter into the composition of the system: 1) A Type "Elektronika-100" computer with a storage size of 4096 words and a device for input-output of information; 2) A Type UT-1 program-controlled tester with 1 ÷ monitoring stations each. The maximum set [komplekt] of the system can have up to seven UT-1 testers. The mathematical security developed makes it possible to perform multi-program control by testers (the monitoring stations operate in a time-sharing regime) and with the following monitoring regimes: 1) Simultaneous monitoring of up to seven different types of transistors and semiconductor diodes (the

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USSR

KLYUCHANTSEV, S.V., et al. V sb. Novoye v tekhn. poluprovodn. proiz-va, Voronezh, Voronezh University, 1971, pp 96-104

overall extent of the test program should not exceed 240 tests) and the separation of them into 14 or 32 groups; 2) Automatic monitoring and processing of the results of measurements (quantity and percentage of devices in each group, quantity and percentage of rejected devices), and also the entry of these results into the numerical printing [tsifropechat']. The system can change the quantitative composition of the equipment with the object of accommodation to the requirements of test, series, or mass production. 3 ill. 1 ref. V.P.

2/2

USSR

UDC:669.245'71.017.3

LITVINOV, V. S., BOGACHEV, I. N., ARKHANGEL'SKAYA, A. A., PANTSYREVA, Ye. G.,
Ural Polytechnic Institute imeni Kirov

"Electron Microscope Investigation of Nickel-Aluminum Alloy Martensite"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 2, 1973,
pp 388-393

Abstract: The structure of the alloy 64 at.% Ni + 36 at.% Al, in which martensite conversion has occurred upon cooling from high temperatures (1200°C) at rates preventing separation of excess nickel, is studied by an electron-microscope method. It is shown that the martensite needles consist of thin plates in twin orientation in relation to each other with twinning planes in the set {101}. A β-phase shear plan is suggested, leading to the formation of such a martensite structure.

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USSR

UDC 669.245'71.017.3

ARKHANGEL'SKAYA, A. A., BOGACHEV, I. N., LITVINOV, V. S., and PANTSYREVA, Ye. G., Ural Polytechnic Institute imeni S. M. Kirov

"Phase Transformations in Nickel-Aluminum Alloys With Cesium Chloride Lattice"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 2, Aug 72, pp 541-546

Abstract: A study was made by metallographic, dilatometric, and roentgenostructural methods of the effects of the degree of nickel supersaturation on phase transformations during heating in substitutional Ni-Al-base solid solutions. The diffusionless transformation of a part of martensite into the β-phase in alloys with 65 and 66 at% Ni is accompanied by a separation of Ni_3Al dispersion particles. At the same time, a reduction of the specific volume of martensite and β-phase takes place. The transformation in the 240-360 deg. temperature interval results in intense hardening of the alloy: its microhardness increases up to 900 kg/mm^2. Analogous effects are observed for the 64% Ni-2% Co-34% Al and 64% Ni-2% Fe- 34% Al ternary alloys. It is supposed that volumetric changes accompanying the formation of martensite and its transformation during heating must affect the properties

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USSR

ARKHANGEL'SKAYA, A. A., et al., Fizika Metallov i Metallovedeniye, Vol 34, No 2, Aug 72, pp 541-546

of coatings, particularly during repeated heating and cooling, develop microcracks in the protective coating, decay the heat-resistant oxide film, and intensify the diffusion processes in the coating. Three figures, one table, five bibliographic references.

2/2

USSR

UDC 669.71'24:535.21:621.378.325

LITVINOV, V. S., and PANTSYREVA, YE. G., Sverdlovsk

"Special Features of the Deformation and Disintegration of Compounds in the Ni-Al System Under the Effect of High Thermal Impulses"

Moscow, Izvestiya Akademii Nauk USSR, Metally, No 4, Jul/Aug 72, pp 199-202

Abstract: The stresses in the Ni-Al surface layer of gas turbine blades causing blade failure at high flow rates and high local temperature changes were simulated by using the impulse effect of a light beam on specimens of Ni-Al binary alloys with different Ni contents. The microstructures of the specimens show a correlation between the size of the developing craters and the fusing temperature of alloys, indicating an increase in crater size with decreasing fusing temperature. Signs of plastic deformation and microcracks were observed in the influence zone of one-phase specimens. The Ni_2Al_3 and NiAl compounds and solid solutions showed low plasticity under local mechanical and thermal actions. A necessary condition for the plasticity of the alloy is the presence of the Ni_3Al phase in its structure. As a result of the thermal impulse action, a sharp hardening of surface microvolumes takes place. This is obviously connected with an increase of the density of defects in these

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USSR

LITVINOV, V. S., and PANTSYREVA, YE. G., Izvestiya Akademii Nauk USSR, Metally, No 4, Ju/Aug 72, pp 199-202

regions of the material. One illustration, ten bibliographic references.

2/2

USSR

UDC 621.317.7

LITVINOV, V. V.

"A Method of Shaping Single-Band Waveforms in the Very Low Frequency Band"

V sb. Probl. tekhn. elektrodinamiki (Problems of Technical Electrodynamics--collection of works), vyp. 28, Kiev, "Nauk. dumka", 1971, pp 61-66 (from RZh-Radiotekhnika, No 7, Jul 71, Abstract No 7A268)

Translation: The author notes the promise of using single-band converters of harmonic voltages in the very low frequency range. Conventional converter circuits are considered along with their disadvantages connected with the discrepancy of amplitude-frequency and phase-frequency characteristics arising as a consequence of the multichannel nature of the converter circuitry. A version of a single-channel single-band converter is proposed which uses the principle of periodic conversion of modulating and modulated voltages in quadrature. It is shown that the proposed converter circuit can be used for suppression of a nonworking side frequency of at least 60 dB. Two illustrations, bibliography of five titles. Resumé.

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USSR

UDC 669.71:621.035

TOVSTENKO, A. F., CHALIK, S. M., GORELIK, A. Ya., LITVINOV, Ye. V., SVERDLIN, V. A.

"Study of New Types of Raw Materials for the Production of the Anode Mass"

Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 71, pp. 10-20. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G155 by the authors).

Translation: A description is presented of various carbon materials used in the production of anode mass. The task of their classification is stated. The stages in the development of the production of raw materials in the USSR and its study at the All-Union Institute for Aluminum, Magnesium and Electrode Industry are studied. The types of cokes and pitches studied are listed and briefly described, and their promise for utilization is estimated. A bibliography of published works performed by the Institute together with other institutions on the investigation of carbon-based raw material is presented.

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USSR

PASHKOVA, T. M., LITVINOVA, A. R., POTROSOV, V. V., and EKSLER, A. A.

UDC 621.374.33

"Classification and Comparative Analysis of Threshold Units Based on Semiconductor Devices"

V sb. Tunnel'n. diody v vychisl. i izmerit. tekhn. (Tunnel Diodes in Computer and Measurement Technology -- collection of works), Riga, "Zinatne", 1972, pp 15-36 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 G181)

Translation: Existing types of classification are studied. The authors propose a new type of classification and conduct analysis of threshold units based on semiconductor devices. A prospective group of threshold units is singled out which is based on tunnel diodes and methods are given for expanding the application of tunnel diodes in threshold units. Original article: seven bibliographic entries. Resume.

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USSR

UDC: 537.312.62

BAYKOV, A. I., KLEYN, G. A., GORBACHEVA, L. S., ALIMOVA, R. N., MIKHAYLOV, S. M., LITVINOVA, I. I., BEREZIN, R. G.

"Investigation of Some Properties of the Ternary Alloy SS-2 in the Process of Deformation and Vacuum Annealing"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 157-160 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D563 [résumé])

Translation: A series of experiments is done to determine the influence of intermediate annealing on the technological, mechanical, electrical and structural properties of wire made from SS-2 alloy, which is a member of the niobium-titanium-zirconium ternary system. The resultant data show that intermediate annealing embrittles SS-2 wire to a greater extent as the diameter of the wire decreases and the annealing temperature increases. X-ray structural analysis showed that there is no change in phase composition of the alloy under the given annealing conditions; all specimens have the structure of a β-solid solution with lattice parameter a = 0.325 nm. An examination of powder patterns obtained from annealed wire of all diam-

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USSR

BAYKOV, A. I. et al., Sverkhprovodyashchiye splavy i soyedin.--sbornik, "Nauka", 1972, pp 157-160

eters showed that the temperature for beginning of recrystallization of all diameters of wire is the same — 700°C. Further annealing increases grain size, an especially intensive increase in grain size being observed at annealing temperatures of 1000 and 1100°C. One illustration, bibliography of six titles,

2/2

USSR

UDC 621.372:621.318.134:621.385.6

LEVCHENKO, S.I., LITVINOVA, I.V.

"Periodic Magnetic Focusing Systems Of Comb-Shaped Type"

Elektron. tekhnika. Nauchno-tekhn. sb. Ferrit. tekhn. (Electronics Technology. Scientific-Technical Collection. Ferrite Technology), 1970, No 2(24), pp 49-53 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12A181)

Translation: An improvement is presented of the method of computation of a periodic magnetic focusing system of comb-shaped type, and several variations of periodic magnetic focusing systems are computed. 1 ref. Summary.

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1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--DISTRIBUTION OF ANTIMONY IN DISLOCATION FREE GERMANIUM SINGLE CRYSTALS -U-

AUTHOR-(02)-LITVINOVA, I.YU., SMIRNOV, YU.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 115-16

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ANTIMONY, GERMANIUM, SINGLE CRYSTAL, CRYSTAL LATTICE DISLOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0081 STEP NO--UR/0363/70/006/001/0115/0116

CIRC ACCESSION NO--AP0054878

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054878

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISLOCATION FREE GE SINGLE CRYSTALS WITH SB ADDNS. OF 10 PRIME12 MINUS 10 PRIME14 CM PRIME NEGATIVE3 WERE GROWN BY THE CZOCHRALSKI TECHNIQUE IN THE (111) DIRECTION. THE NO. OF THE DISLOCATIONS PRESENT IN THEM VARIED FROM 0 TO 10 CM PRIME NEGATIVE2. TO PREP. SUCH CRYSTALS, THE CRYSTN. FRONT WAS KEPT STRAIGHT. IN THIS CASE THE (111) FACE FACED THE INTERPHASE SURFACE. THE SB DISTRIBUTION WAS STUDIED BY THE PULSE ANODIC METHOD. THE DISTRIBUTION OF SB AT VARIOUS SECTIONS OF THE CRYSTALS IS DISCUSSED.

UNCLASSIFIED

USSR

UDC 546.289:546.55

LITVINOVA, I. YU., and SMIRNOV, Yu. N.

"Distribution of Antimony in Dislocationless Single Crystals of Germanium"

Moscow, Neorganicheskiye Materialy, Vol 6, No 1, Jan 70, pp 115-118

Abstract: A description is given of an experiment in which dislocationless germanium crystals with antimony additive in the amount of 10^{18}-10^{19} cm^{-3} were grown in the [111] direction by the Czochralski method. The nature of the antimony distribution was studied by the method of pulse anode pickling on the end cross sections of the crystals and by measuring the specific resistance by the four-probe method. The crystals with triangular facos were of special interest. Three cavities with negative relief in comparison with the plane face occupying the primary area of the cross section were frequently observed on the cleavage surface. These cavities were usually located near the vertices of the triangular cross section. The special properties of these cavities are described, and the mechanism of the effects in them is discussed.

1/1

UDC 611.419:612.014.48

USSR

VSEVOLODOV, E. B., LITVINOVA, L. D., and VISHNEVSKAYA, S. S., Institute of Experimental Biology, Kazakh Acacemy of Sciences

"Efficacy of Chemical Protection Against Radiation Shortly After Exposure in Relation to Stages of the Mitotic Cycle"

Alma-Ata, Izvestiya AN KazSSR, Seriya Biologicheskaya, No 3, 1973, pp 84-90

Abstract: Rats were administered aminoethyl thiouranium (AET) 10 minutes before irradiation at 50 or 100 r and sacrificed 3 and 6 hours later to obtain smears of bone marrow suspensions for histoautographic examination. Cells irradiated in the S phase were better protected against interkinetic death than the other cells and better protected against chromosomal aberrations than those irradiated in the G_2 phase. AET provided no protection against aberrations in cells irradiated in the G_2 phase. The number of anaphases and telophases with chromosomal aberrations among the dividing cells irradiated in the S phase decreased 6 hours after a dose of 50 r by a factor of 1.7 and 3 and 6 hours after a dose of 100 r by a factor of 1.2 and 1.1 respectively. With an increase in the dose from 50 to 100 r and after the injection of AET, there was a change in the relative contribution of cells irradiated

USSR

VSEVOLODOV, E. B., et al., Izvestiya AN KazSSR, Seriya Biologicheskaya, No 3, 1973, pp 84-90

in various phases of the mitotic cycle, in the index of aberrations, in the mitotic index, and in the number of interphase degenerating cells.

USSR

UDC 612.014.426.014.2-02

LITVINOVA, L. I., Kiev Scientific Research Institute of General and Communal Hygiene

"Experimental Study of the Biological Effects of a Low-Intensity Shortwave Electromagnetic Field"

Kiev, Vrachebnoye Delo, No 6, 1972, pp 137-139

Abstract: Exposure of rats and mice to a shortwave electromagnetic field (λ = 75 m) 22 to 24 hours daily for 4 months brought about significant changes in nervous, endocrine, and sexual activities. It disrupted conditioned reflexes by lowering cholinesterase activity and inactivating blood SH groups. It increased adrenocortical function as manifested by marked intensification of excretion of 17-ketosteroids and decrease in ascorbic acid activity. The 75-m electromagnetic field also adversely affected the reproductive system: it resulted in fewer offspring in the litters induced degenerative changes in the testes, and disrupted the estrous cycle. The magnitude of the effects varied with the intensity of the field, duration of exposure, and individual characteristics.

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USSR

UDC 669.788:548.526

KAZAKOV, D. N., KUNIN, L. L., and LITVINOVA, N. F., Moscow

"Experimental Evaluation of the Role of Surface Reactions in Studies of Hydrogen Permeability Through Titanium, Nickel, and Copper"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 2, Mar-Apr 73, pp 91-95

Abstract: From the expression for theperiod of instability L, $L=\frac{l^2}{6D}+\frac{2l}{3K}$, at permeation of H through a membrane of thickness l, taking into account the diffusion and kinetic resistances 1/D and 1/K on both sides of the membrane, the values of D and K can be determined by measuring L. The solubility can be determined from a previously given expression (Khokhrin, V. M., et al., Zh. Fiz. Khimii, 1968, 42, No 3, p 805) for the density j of a stationary flow,

$$j=\frac{S_{entry}-S_{exit}}{1/D+2K},$$

1/2

USSR

UDC 620.193.5:/621.793.6:669.14/

OSINTSEV, V. D., GORBUNOV, N. S., LAVRENKO, N. A., LITVINOVA, N. YE., and SIDEL'NIKOVA, E. A., VNIKTI (All-Union Sci Res, Design and Technological Institute of the Pipe Industry, Dnepropetrovsk)

(1)

"Effect of Diffusion Chromium Plating and Heat Treatment on the Corrosion Resistance of Chromium Plated Steel in Hot Sulfurous Gases"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 2, 1973, pp 17-19

Abstract: The effect of chromium plating temperature, carbon content in the steel, cooling rate and heat treatment on the corrosion resistance of a contact-diffusion chromium coating in the gases of an industrial tubular heat exchanger used in the production of elementary sulfur was investigated. Steels 10, 20, 45, armco iron and steel 1Φ with titanium (0.14% C and 0.74% Ti) were used in this study. Chromium plating was done at 1100° and 1150° C for six hours in a vacuum of 0.01-0.001 mm Hg. Samples were placed inside a tube in a flow of gas containing almost 4% by volume) sulfur (sulfur dioxide, hydrogen sulfide, sulfur vapors and sulfur-organic compounds). Gas temperature was kept at 270-290°C and test time was 12,240 hours. Samples of steels Kh25T, Kh18N10T and St. 3 (not plated) were also tested for comparison. Steel 10 + Ti after plating at 1150°C and steel 10, annealed or normalized after plating, had the least

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USSR

OSINTSEV, V. D., et al., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 1973, pp 17-19

corrosion (0.002-0.003 g/m^3-hr) when they were rapidly cooled (600-1000° C/hr) owing to the smaller amount of carbides able to enter the alpha-solid solution. 1 figure, 5 bibliographic references.

2/2

USSR UDC: 539.1.074

GRAMMATIKATI, V. S., GRINEV, M. P., YERSHOVA, Z. F., KOZLOV, I. L., LITVINOVA, T. G., MIKHAYLOV, L. M., MOLIN, A. A., PANCHENKOV, G. M.

"Color Indicators for Visual Evaluation of Dose During Radiation Sterilization"

Dozimetriya i Radiats. Protsessy v Dozimetr. Sistemakh [Dosimetry and Radiation Processes in Dosimetric Systems -- Collection of Works], Tashkent, Fan Press, 1972, pp 113-118 (Translated from Referativnyy Zhurnal Metrologiya i Izmerital'naya Tekhnika, No 3, 1973, Abstract No 3.32.1403), from the resume.

Translation: It is suggested that a plasticized PVC film containing an acid-sensitive dye be used as a color dose indicator for the 0.1-5.0 Mrad range. The sensitivity of indicators to radiation as a function of film composition and dye used is studied. Color dose indicators are calibrated using the ferrosulfate method and calorimetry. A method is suggested for instrumental testing of changes in the color of indicators using spectrophotometry of irradiated specimens, allowing doses to be measured with errors of ±10-12%. Practical recommendations are presented for the use of color dose indicators to check radiation sterilization. 2 figures, 1 biblio. ref.

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UDC 620.192.45:669.141.247

USSR

LITVINOVA, T. I., RAYCHENKO, T. F., PETROV, A. K., and PIROZHKOVA, V. P., UkrNIIspetsstal' [Ukrainian Scientific Research Institute of Special Steels, Alloys and Ferroalloys]

"Mechanism of Magnesian Spinel Formation in Steels"

Moscow, Stal', No 7, Jul 71, pp 650-653

Abstract: The authors made a detailed petrographic study of cobbings from the working layer of industrial electric-furnace hearths in melts of steels ShKh15, 45G17YuZ, Kh18N10T, 25KhGSA, and 30KhGSNA and studied the phase composition of melting slags and nonmetallic inclusions forming in these steels. In addition, these same brands of steel were obtained under laboratory conditions in a 50-kg induction furnace with a magnesite rammed lining, and iron, manganese, chromium, aluminum, and other metals were smelted in magnesite crucibles with a one-hour holding time. All laboratory melt products (metals, slags, fettling), as well as products of the interaction of the smelted metals with periclase were studied by the petrographic method. Solid solutions and complex chemical compounds were studied by the X-ray analysis method.

USSR

LITVINOVA, T. I., et al., Stal', No 7, Jul 71, pp 650-653

It was found that the source of magnesian spinel inclusion formation in the steels is the magnesite furnace lining, which undergoes mechanical erosion and is exposed to the chemical action of the main steel components during melting. Results of the petrographic study of the working zone of the furnace hearth, melting slags, and nonmetallic inclusions indicate that the fine-crystalline variety of magnesian spinel inclusions (up to 5 microns) is formed directly in the liquid phase (metal and slag) and that this process develops most intensively during teeming of the steel as a result of reoxidation of the metal (as per the findings of YU. A. SHUL'TE). The presence of periclase relics in the macrocrystalline variety of spinel inclusions (20-40 microns) suggests that the inclusions get into the metal with the slag emulsion. On the basis of the described conditions of formation, magnesian spinel inclusions cannot be grouped as either exogenous or endogenous, but are the product of their interaction with each other.

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UDC 669.14.018.29.002.697

USSR

DANICHEK, R. Ye., CHUYKO, N. M., PEREVYAZKO, A. P., [illegible], T. I., and SEMIKOPENKO, A. F., Dnepropetrovsk Metallurgical Institute

"Nonmetallic Inclusions in Structural Titanium-Containing Steels"

Novokuznetsk, Izv. VUZ, Chern. Metallurgiya, No 10, 1970, pp 48-51

Abstract: The influence of the deoxidation mode on the content and composition of nonmetallic inclusions in structural titanium-containing [illegible] is studied with two versions of smelting: the current technology, [illegible] experimental technology involving preliminary deoxidation of the metal with aluminum and calcium-silicon alloy plus diffusion deoxidation with powders of 75% ferrosilicon (0.4-0.6%) aluminum (0.2-0.25%), and coke (0.2-0.3%). Sedimentary deoxidation with aluminum (0.07-0.08%) is performed before introducing the ferrotitanium [illegible] deoxidation forms nonmetallic inclusions predominately composed of [illegible], which facilitates their rapid removal from the metal. The improved deoxidation mode, in combination with protection of the stream of metal from secondary oxidation during casting, allowed the mean content of nonmetallic inclusions to be reduced from 0.0228 to 0.0146%. Rejection of castings was reduced from 11.5% to 0.8%.

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USSR

UDC 669.14.018292:549.12

LITVINOVA, T. I., RAYCHENKO, T. F., PIROZHKOVA, V. P., and MOSHKEVICH, L. D.

"Petrographic Investigation of Rough Globular Elements in ShKh15 Steel"

Moscow, Stal', No 2, Feb 71, pp 166-168

Abstract: The coarse, globular nonmetallic elements found in ShKh15 steel and determined by X-ray analysis to be largely of magnesian spinels, markedly debase the quality of the steel and adversely affect its characteristics, often leading to the discard of individual alloys. This article describes the method used by the authors to determine the phase state of these elements by the petrographic method, in which sections of the steel were examined under the microscope after metallographic study. The elements are from 100 to 150 microns in size, and were discovered in the ShKh15SG alloy as well as in the ShKh15, both manufactured by the "Dneprospetsstal'" plant. They can be classified in three groups, differing in shape, reflective capability, and behavior under polarized light. Most of them had the chemical composition of $2CaO \cdot SiO_2$. The petrographic examination, yielding results which agreed closely with the X-ray study, showed that the elements correspond in phase and structure to slag, from which they probably originate.

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1/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--INTERACTION OF CHROMIUM AND TITANIUM WITH A MAGNESITE REFRACTORY -U-

AUTHOR-(03)-LITVINOVA, T.I., RAYCHENKO, T.F., PIROZHKOVA, V.P.

COUNTRY OF INFO--USSR

SOURCE--OGNEUPORY 1970, 35(1), 46-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHROMIUM, TITANIUM, HIGH TEMPERATURE HEAT TREATMENT, REFRACTORY MATERIAL, MAGNESIUM OXIDE, CHEMICAL REACTION, CHROMATE, TITANATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0916 STEP NO--UR/0131/70/035/001/0046/0049

CIRC ACCESSION NO--AP0113751

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113751

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CR AND TE WERE MELTED AT 1800DEGREES FOR 20 MIN IN CRUCIBLES PREPD. FROM MAGNESITE OF D. 3.57 G-CM PRIME3, CONTG. MGO 92, CAO 1.10, FE SUB2 O SUB3 1.82, AL SUB2 O SUB3 0.50, AND SIO SUB2 2.74PERCENT. AS A BINDER, SULFITE,ALC. SPENT LIQUOR WAS USED. THE CRUCIBLES AFTER MELTING CR HAD A 0.5 MIM BROWNISH GREEN COVERING OF MGCR SUB2 O SUB4 SEPD. IN PERICLASE AND METALLIC CR. MELTING OF TI LED TO THE PRODUCTION OF A 3-5 MM THICK BLACK LAYER IN THE CRUCIBLE, CONTG. PERICLASE, MGTIO SUB3, AND TI OXIDES, MAINLY TIO.

UNCLASSIFIED

LITVINOVA, T. P.

(41)

TECHNICAL TRANSLATION

FSTC-HT-23-1015-72

29 Nov 72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV, SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: L. A. BERTUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY IMENI T.G. SHEVCHENKO

Translated for FSTC by ACSI

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Approved for public release: Distribution unlimited.

1/2 036 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--WIDTH OF THE FREQUENCY SPECTRUM DURING STRONG FLUCTUATIONS OF WAVE AMPLITUDE IN A TURBULENT ATMOSPHERE -U-

AUTHOR--LITVINOVA, T.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. VUZ. RADIOFIZIKA, VOL. 13, NO. 3, 1970, P. 462-464

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTROMAGNETIC WAVE PROPAGATION, SPECTRUM ANALYSIS, ATMOSPHERIC TURBULENCE, APPROXIMATION METHOD, AUTOCORRELATION FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0070 STEP NO--UR/0141/70/013/003/0462/0464

CIRC ACCESSION NO--AP0111264

UNCLASSIFIED

2/2 036 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0111264

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL ANALYSIS OF THE BEHAVIOR OF THE FREQUENCY SPECTRA OF THE LOG AMPLITUDE FLUCTUATIONS OF AN ELECTROMAGNETIC WAVE PROPAGATING IN A TURBULENT ATMOSPHERE. THE GEOMETRICAL OPTICS APPROXIMATION IS USED, AND THE SPECTRAL DENSITY IS DETERMINED WITH THE AID OF A KNOWN TRANSFORM WHICH RELATES IT TO THE AUTOCORRELATION FUNCTION. THE RESULTS SHOW THAT UNDER CONDITIONS OF STRONG AMPLITUDE FLUCTUATIONS THERE IS A CHARACTERISTIC SATURATION OF THE FREQUENCY SPECTRUM WIDTH. FACILITY: LENINGRADSKII ELEKTROTEKHNICHESKII INSTITUT SVIAZI, LENINGRAD, USSR.

UNCLASSIFIED

Rubber and Elastomers

USSR

UDC 678.049.002.612

LITVINOVA, T. V., VOL'CHENKO, R. L., and TOLSTUKHINA, F. S.

"New Plasticizer for Cold Resistent Rubbers"

Moscow, Kauchuk i Rezina, No 12, 1972, pp 26-28

Abstract: The nature of the plasticizer is important in producing cold resistance in rubbers. The ester plasticizers usually used are limited by high cost, lack of starting materials, and high volatility. Other plasticizers have lower volatility, but cannot produce the needed cold resistance. A Possible solution to this problem lies in the use of a new ester plasticizer, using synthetic monobasic fatty acids(SFA) which are readily available on a large scale from oil refineries from the oxidation of paraffins. Synthesis of these new plasticizers was realized in one instance with diethylene glycol and SFA of various fractions (from C_5-C_6 to C_{10}-C_{11}) and in another instance by esterification of a SFA fraction with various alcohols. The effectiveness of these new plasticizers was estimated by comparing the magnitude of the cold resistance coefficients of standard butadienenitrile and nairit B vulcanized rubbers. The maximum coefficient of cold resistance was obtained from SFA fraction C_7-C_9. Plasticizers with normal alcohols, . . . were much more effective

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USSR

LITINOVA, T. V., et al., Kauchuk i Rezina, No 12, 1972, pp 26-28

than those of branched alcohols, with diethylene glycol producing optimal results. The ester from the SFA fraction C_7-C_9 and diethylene glycol is called LZ-7. It is much less volatile than commonly used esters(dibutyl sebacate and dibutyl phthalate). In conditioned cold resistance LZ-7 is close to dibutyl sebacate and surpasses dibutyl phthalate. A definite correlation between the effectiveness of plasticizer action and the degree of change in its viscosity with a lowering of temperature was demonstrated, with LZ-7 showing an insignificant change in its viscosity with a lowering of temperature. The effectiveness of ester LZ-7 was confirmed with resins from both polar and nonpolar rubbers used in production of various rubber materials, in which LZ-7 surpasses dibutyl phthalate and is close to dibutyl sebacate.

2/2

USSR

UDC 669.18-412:621.746.753

KLEMESHOV, G. A., DOROKHOV, V. I., PALYANICHKA, V. A., and LITVINOVA, V. I.
(Ukrainian Scientific Research Institute of Metals)

"Rational Method of Deoxidizing Silicon Manganese Steel for the Production of Thick Slabs"

Moscow, Stal', No 9, Sep 72, pp 798-801

Abstract: The effect of preliminary and final reduction of 09G2S silicon-manganese steel (GOST 5520-69) on the process kinetics of the formation and removal of non-metallic impurities and on the variation of residual concentrations of deoxidizing elements (Al, Mn, Si, Ti) during casting and crystallization of 9-m slabs is considered. The investigation was carried out on four smeltings produced in 135-m open-hearth furnaces with silicon-manganese domes at the Zhdanov Metallurgical Plant. Preliminary reduction in the furnace by manganese-silicon was shown to be more effective than introducing it into the ladle together with ferrosilicon, aluminum, and ferrotitanium. A further advantage is that there is less contamination of the metal with oxide impurities and there is a more uniform distribution between the upper and bottom slab sections. The residual Al content increased from thousandths of a percent to 0.016-0.020% (about 5 to 6 times) and slab rejection due to unsatisfactory indexes of impact strength at low temperatures is practically eliminated.
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1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--REFINING OF LINSEED OIL -U-

AUTHOR-(05)-ARTYUNYAN, N.S., ARISHEVA, YE.A., LITVINOVA, YE.D., PETRENKO, YU.A., MNUKHIN, U.YU.

CCUNTRY OF INFO--USSR

SOURCE--MASLO-ZHIR. PROM. 1970, 36(3), 19-21

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--WOOD CHEMICAL PRODUCT, CHEMICAL PURIFICATION, OPTIC PROPERTY, TEST METHOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1561 STEP NO--UR/9085/70/036/003/0019/0021

CIRC ACCESSION NO--AP0118544

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118544

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REFINING OF LINSEED OIL, CONSISTING OF TREATING WITH ACIDS, NEUTRALIZATION WITH NAOH (80 G-L.), AND TREATING WITH ACTIVATED BLEACHING CLAY WAS EXPTL. INVESTIGATED WITH SPECIAL EMPHASIS ON ACID TREATMENT. A COMPARISON WAS MADE BETWEEN REFINING INCLUDING TREATMENT WITH ACIDS, AND REFINING WITHOUT ACIDS. PRELIMINARY TREATMENT OF 3 LINSEED OIL TYPES (PREPD. FROM FLAX FOR SPINNING, FROM FLAX FOR OIL PREPN., AND FROM A FLAX MIXT.) WITH 0.2PERCENT (BASED ON THE AMT. OF OIL) 85PERCENT H SUB3 PO SUB4 OR 93PERCENT H SUB2 SO SUB4 OR WITH THEIR OIL. SOLNS. PROVIDES BETTER ELIMINATION OF PHOSPHATIDES AND AN IMPROVEMENT IN OIL APPEARANCE (LOWER COLOR) AND ITS THERMAL TESTING COMPARED WITH AN UNTREATED OIL SAMPLE.

FACILITY: KRASNODAR. POLITEKH. INST., KRASNODAR, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EFFECT OF VACUUM ANNEALING SYSTEMS ON SOME PHYSICOCHEMICAL PROPERTIES OF STEEL 08KP -U-

AUTHOR-(02)-LITVINOVA, YE.I., NOVAKOVSKAYA, E.P.

COUNTRY OF INFO--USSR

SOURCE--FIZ.-KHIM. MEKH. MATER. 1970, 6(1), 91-3

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ALLOY DESIGNATION, LOW CARBON STEEL, GRAIN SIZE, KILLED STEEL, VACUUM ANNEALING, HYDROGEN, PERMEABILITY, GAS CONTAINING METAL, METAL CONTAINING GAS/(U)08KP STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0326 STEP NO--UR/0369/70/006/001/0091/0093

CIRC ACCESSION NO--AP0126082

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0126082

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VACUUM ANNEALING AT SMALLER THAN OR EQUAL TO 1050DEGREES INITIALLY LOWERED THE H PERMEABILITY, AND AFTERWARDS INCREASED IT, MORE THAN COULD BE ACCOUNTED FOR FROM GRAIN SIZE INCREASE. A REPEATED ANNEALING IN VACUUM WITH GRAIN FRAGMENTATION CAUSED THE H PERMEABILITY TO INCREASE BY A FACTOR OF 3-4 MORE THAN IN THE SAME STEEL AFTER THE 1ST ANNEALING. AFTER ANNEALING AT 900-1050DEGREES, THE ETCH ABILITY OF THE STEEL IS IN DIRECT RELATION TO THE H PERMEABILITY; HOWEVER AFTER ANNEALING AT 1100DEGREES THE RATE OF ETCHING AND THE H PERMEABILITY INCREASED SHARPLY MORE THAN THE GRAIN SIZE INCREASE. FACILITY: LENI GRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 911.3.616.986.7(470.313)

LITVINOVA, Z. I., VOLODIN, A. A., and SADOVNIKOVA, R. N.

"Leptospirosis Epidemiology in Ryazanskaya Oblast"

Nauch. tr. Ryazansk. med. in-t (Scientific Works of Ryazan Medical Institute), 37, 1970, pp 81-85 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.116)

Translation: Cases of this disease in humans are seen almost every year (data survey from 1949), with periodic peaks after 3-5 years. The etiological structure of the disease in humans as well as in cattle is dominated by the serotypes L. grippotyphosa and L. pomona. Natural foci are associated with forest zones, while anthropurgic foci are associated with forest steppe.

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USSR UDC: [537.226+537.311.33]:[537+535]

DANIL'IEVICH, M. I. and LITVINOVICH, G. V.

"Investigating the Temperature Dependence of Nickel-Manganese-Zinc Ferrite Dielectric Permeability"

Vestn. Belorus. un-ta (Belorussian University Herald) 1971, series 1, No. 2, pp 62-67 (from RZh-Fizika, No. 11, 1971, Abstract No. 11E962)

Translation: The temperature dependence of the dielectric permeability and resistance of Ni-Mn-Zn ferrites with 22 different compositions is studied. A correlation between the activation energy of the conductivity and that of the polarization relaxation component and their effects on the dielectric permeability are found. The predominance of the effect of Mn and Ni ions on the change in electrical and dielectrical characteristics is detected in the thermal processing of the specimens.

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1/2 · 013 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--UTILIZATION OF THERMOLUMINESCENCE METHOD FOR THE STUDY OF MAGMATIC ROCKS CONTACTS EXEMPLIFIED BY TUCHINSK MASSIF -U-

AUTHOR-(03)-VASILENKO, V.B., LITVINOVSKIY, B.A., KHOLODOVA, L.D.

COUNTRY OF INFO--USSR

SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 2, PP 57-63

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MAGMA, GRANITE, THERMOLUMINESCENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1229 STEP NO--UR/0210/70/000/002/0057/0063

CIRC ACCESSION NO--AP0103117

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103117

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT THE STUDY OF ALKALINE AND NEPHELINE SYENITES CONTACTS WITH PALEOZOIC GRANITOIDS USING THE METHOD OF THERMOLUMINESCENCE IS ESTABLISHED THAT THERMOLUMINESCENCE PARAMETERS OF SYENITES AND THEIR FELSPARS ARE UNDERRATED COMPARATIVELY WITH THOSE "NORMAL" AND INDICATE THE TEMPERING OF THESE ROCKS. THE DEGREE OF THE TEMPERING IS DECREASED WITH REMOVAL FROM CONTACT WITH GRANITES. BASED UPON THESE DATA THE MOVEMENT OF THE HEAT FLOW FROM GRANITES UP TO SYENITES IS SUGGESTED.

UNCLASSIFIED

USSR UDC 534

LITVIN-SEDOY, M. Z.

"On the Equations Relating the Parameters of the Motion of a Body-Carrier and the Pendulum Carried"

Nauchn. tr. In-t mekh. Mosk. un-ta (Scientific Works. Institute of Mechanics of Moscow University), 1971, No. 10, pp 136-147 (from RZh-Mekhanika, No 12, Dec 71, Abstract No 12A210)

Translation: The equation of motion of a mathematical suspension of variable length, the point of suspension of which makes a given motion relative to the moving body, are compiled. Properties of these equations are discussed for a plane and three-dimensional motion of the pendulum and the carrying body. In the case of plane motion it is found how the length of the pendulum should vary so that its filament at each point in time is directed along the vector of apparent acceleration. Relationships are obtained that make it possible to use the results of measuring the angles of deflection of two pendulums or maintenance of a given direction of their filaments. Also determined are conditions which, if fulfilled, simplify the equations of motion of a spherical pendulum. Other related problems of interest in inertial navigation are listed. 29 ref. K. Sh. Khodzhayev.

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30 Jul 71 96 FTD: CYBERNETICS

56. USSR UDC 62-50

ARSHINOVA, Ye. A. and ARSHINOV, Ye. A.

"Several Very Simple Mechanisms of Skeletal Muscle Control"

Issledovaniye Protsessov Upravleniya Myshechnoy Aktivnosti'yu, Moscow, "Nauka" Publishing House, 1970, pp 5-19

Translation[of author's abstract]: Model representations of single muscle control systems and control systems for pairs of muscle-antagonists are given for precise maintenance of desired value of a joint angle and also for the movement by specific joints.

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57. USSR UDC 62-50

ARSHINOVA, Ye. A., ZAKHAROVA, L. M., LITVINTSEV, A. I. and CHERKOV, V. I.

"Muscle Twitches as Elementary Acts of Muscle Activity"

Issledovaniye Protsessov Upravleniya Myshechnoy Aktivnosti'yu, Moscow, "Nauka" Publishing House, 1970, pp 50-60

Translation [of author's abstract]: A method of interpreting an EMG [electromyogram] by passing it through a filter is proposed. This technique shows that muscle functioning is accomplished by twitches whose detection in the EMG proves to be difficult. It was experimentally shown that these twitches are reflected in the curve of variation of the force generated by the muscle in time intervals of the order of 100 msec.

The method used shows that the control of muscle activity is the instants of twitch initiation and that these instants are practically independent of filter characteristics.

The proposed method is convenient for studying muscle control processes.

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LITVINTSEV, A. I

USSR

UDC 621.791.75:621.3.014.3:62-229.213.001.5:669.715

LITVINTSEV, A. I., Candidate of Technical Sciences, KRYUKOVSKIY, V. N., Candidate of Technical Sciences, and TENENBAUM, F. Z., Engineer

"Specifics of the Structure of the Arc Produced in the Pulsed Arc Welding of AMg6 Alloy"

Moscow, Svarochnoye Proizvodstvo, No 11, Nov 70, pp 8-10

Abstract: The processes which occur in the visible arc during pulsed welding with a melting electrode are analyzed. The arc consists of three zones with characteristic physical and chemical processes. The smooth film around the edge of the welding bath and seam consist of a mechanical mixture of atoms of Al, Mg, and MgO, condensed from the vapor phase on the surface of the welded metal. The dull black film formed near the welded seam consists of $MgAl_2O_4$ and MgO powdered oxides and pure Al and Mg. The oxygen and mositure contained in the Ar protective gas oxidize the Mg vapors. The process of oxidation of metal vapors occurs most strongly in the outer envelope of the arc.
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LITVINTSEV, A. I., et al., Svarochnoye Proizvodstvo, No 11, Nov 70, pp 8-10

The primary source of oxygen is mositure absorbed by the surface of the electrode wire. As the absorption capacity of the surface of the electrode wire is decreased by chemical or mechanical processing, the intensity of oxidation of metal vapors in the arc can be significantly decreased.

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USSR

UDC 621.5:669.71

LITVINTSEV, A. I., IVASHKO, K. V., and KLIMOVA, L. N., Kuybyshev

"Microstructural Changes in Particles of APS-1, 2, 3 Industrial Aluminum Powders During Annealing"

Kiev, Poroshkovaya Metallurgiya, No 11, Nov 70, pp 10-15

Abstract: A study is made of microstructural changes which take place in individual nodulized particles of industrial aluminum powders after annealing at 550, 600, and 700°C with a holding time of 1 hr. APS-1, 2, 3 industrial aluminum powders with aluminum oxide contents of 7, 11.8 and 15%, respectively, were used. It is shown that during annealing of the powders in air and argon media the nodulized particles split and internal porosity appears. In addition to oxidation, the growth of small crystals γ-Al_2O_3 takes place in aluminum powder during heating in air at 600 and 650°C. During heating in argon medium oxidation occurs due to the interaction of the moisture of the hydroxide phase with aluminum. The resultant modification of aluminum oxide remains in a dispersed state. The process of disintegration of modulized particles is determined by the internal sources of degassing, which are fragments of hydroxide boundaries making up the conglomerate of nodulized particles.

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UNCLASSIFIED PROCESSING DATE--02OCT70

1/2 044

TITLE--PROPERTIES AND USE OF AN ALUMINUM POWDER DEGASSED IN AN INERT ATMOSPHERE -U-

AUTHOR-(05)-LITVINTSEV, A.I., TSABROV, N.D., VINOKUROV, N.D., TITOV, V.N., BORZUNOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(2), 62-4

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ALUMINUM POWDER, POWDER METAL PRODUCTION, POWDER METAL PROPERTY, METAL DEGASSING, INERT GAS, INDUSTRIAL FURNACE, HOT ROLLING, COLD ROLLING, DUCTILITY, HEAT RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1919 STEP NO--UR/0136/70/043/002/0062/0064

CIRC ACCESSION NO--AP0108248

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--02OCT70

2/2 044
CIRC ACCESSION NO--AP0108248
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HIGH TEMP. DEGASSING OF LARGE VOLS. OF AL POWDERS ON INDUSTRIAL SETUP WAS TESTED. UP TO 1600 KG OF AL POWDER WAS PURED INTO THE USEFUL VOL. OF THIS SETUP, WHICH WAS THEN PLACED INTO A COLD FURNACE, WHEREUPON AN AR ATM. WAS INTRODUCED. THE TEMP. WAS MEASURED AT THE UPPER, MIDDLE, AND LOWER PORTIONS OF THE DEGASSING CONTAINER. A 4TH THERMOCOUPLE WAS PLACED INSIDE THE CONTAINER. THE TEMP. DROP BETWEEN THE UPPER AND THE LOWER ZONES WAS SIMILAR TO 50DEGREES. THE RESULTS OF THE GAS ANAL. INDICATE THAT THE GAS CONTENT OF THE AL POWDER IS DETD. BY THE TOTAL CONTENT OF THE FRAGMENTS OF THE HYDROXY BOUNDARIES IN CONGLOMERATES OF CLUMPED PARTICLES. THE EFFECTIVENESS OF THE DEGASSING WAS THEN STUDIED IN ORDER TO BE ABLE TO EMPLOY THE POWDER IN THE PRODUCTION OF SEMIFINISHED PRODUCTS. BASED ON THE RESULTS OF THE MECH. PROPERTIES MEASUREMENTS IT CAN BE SEEN THAT HOT ROLLED STRIPS ACQUIRE INCREASED PLASTICITY, WHEREAS THE COLD ROLLED STRIPS ARE STABLE RELATIVE TO THE STRENGTH, PLASTICITY, AND HEAT RESISTANCE.

UNCLASSIFIED

1/2 034 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--PHYSICOCHEMICAL PRINCIPLES IN THE PRODUCTION OF SEMIMANUFACTURES FROM BAKED ALUMINUM POWERS -U-

AUTHOR-(02)-SHELAMOV, V.A., LITVINTSEV, A.I.

COUNTRY OF INFO--USSR

SOURCE--PHYSICOCHEMICAL PRINCIPLES IN THE PRODUCTION OF SEMIMANUFACTRUES FROM BAKED ALUMINUM POWDERS (FIZIKO-KHIMCHESKIYE OSNOVY PROIZVODSTVA

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--PHYSICAL CHEMISTRY PROPERTY, POWDER METALLURGY, INDUSTRIAL PRODUCTION, ALUMINUM POWDER, CHEMICAL REACTION KINETICS, METAL DEGASSING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1711 STEP NO--UR/0000/70/000/000/0001/0277

CIRC ACCESSION NO--AM0130575

UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AM0130575

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: INTRODUCTION 7. CHAPTER I. CERTAIN ELEMENTS OF POWDER METALLURGY 9. II. METHODS OF PRODUCTION, STRUCTURE AND PHYSICOCHEMICAL PROPERTIES OF ALUMINUM POWSER 42. III. GAS CONTENT OF ALUMINUM POWDERS 65. IV. WAYS TO SATURATE ALUMINUM POWDERS WITH GAS IN THE PROCESS OF PRODUCTION 81. V. DEGASING OF ALUMINUM POWDERS 88. VI. KINETICS OF DEGASING OF ALUMINUM POWDERS 113. VII. STRUCTURAL CHANGES IN ALUMINUM POWDERS IN ANNEALING 128. VIII. PRINCIPLES OF THE THEROY AND METHODS FO CASTING SEMIMANUFACTURES FROM FRIABLE MATERIALS 147. IX. METHODS OF OBTAINMENT OF COMPACT SAP (?) BRIQUETS 156. X. BAKING OF POWDER MATERIALS (APPLICABLE TO SAP) 171. XI. TREATMENT OF BLANCS FROM SAP WOTH PRESSURE 192. XII. THERMAL AND MECHANICAL WORKING OF SEMIMANUFACTURES 226. XIII. PROPERTIES OF SAP SEMIMANUFACTURES 235. XIV. THE USE OF SAP SEMIMANUFACTURES IN INDUSTRY 258. XV. PERSPECTIVES FOR THE DEVELOPMENT OF PRODUCTION AND USE OF SEMIMANUFACTURES FROM MATERIALS OF THE SAP TYPE 268. LITERATURE 272. THE BOOK IS DESIGNED FOR TECHNICAL ENGINEERS OF VARICUS BRANCHES OF INDUSTRY SPECIALIZING IN WORKING METALS WITH PRESSURE AND POWDER METALLURGY.

UNCLASSIFIED

USSR UDC 669.1:539.216.2:621.785.3:538.65

LITVINTSEV, V. V., DOMYSHEV, V. A., and KAZAKOV, V. G., Irkutsk Pedagogical Institute

"Influence of Annealing on the Magnetoelastic Characteristics of Iron-Nickel Films"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 1077-1079

Abstract: Results are presented of an investigation of the influence of annealing on saturation magnetostriction γ_s, the magnetoelastic parameter n, and the Young modulus E of films of compositions of about 20% Ni-Fe and about 50% Ni-Fe. Comparison of data for the two compositions before and after annealing indicates that the changes in magnetoelastic properties are determined by phase conversions.

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USSR UDC 615.285.7-099-07

ZHABIN, V. A., and LITVISHCHENKO, F. I., Moscow

"Case of Chlorophos Intoxication"

Kiev, Vrachebnoye Delo, Vol 53, No 3, pp 143-144

Abstract: A case of chlorophos intoxication caused by ingesting a third of a glass of the preparation in 200 g of water is described. Within 10-12 min after intake, acute asthenia and a blue haze before the eyes developed, followed by loss of consciousness. The woman patient was hospitalized. Consciousness was regained within seven hours, with the patient complaining of extreme weakness and severe pains in the leg muscles. Her condition became aggravated on the next day by deep depression, constant fear of death, and occasional mental inchoherence. By the sixth day the patient's condition began to improve, and on the 12th day she was discharged from the hospital. A few days after her discharge from the hospital the patient began to develop neurological symptoms, and after an examination was again hospitalized and placed in a neurological section. Treatment consisted of injections of vitamins B_1 and B_{12}, proserine and adenosine triphosphate intramuscularly, nicotinic acid, dibazol, massage, diathermy, and therapeutic exercises. Improvement began on the ninth day; on the 12th day after the second hospitalization the patient was again discharged from the hospital. Polyneuritis in the case was

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ZHABIN, V. A., and LITVISHCHENKO, F. I., Moscow

apparently due to the direct effect of the chlorophos on the peripheral nervous system.

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USSR UDC 621.357.7:669.38

GAVRILOVA, N. YA., LITVISHKO, N. P., OZEROV, A. M., Volograd Institute of Municipal Economy Engineers

"Electrodeposition of Copper-Nickel Alloy by Pulse Electrolysis"

Moscow, Zashchita Metallov, No 4, 1972, pp 490-492.

Abstract: A comparative study is performed of electrodeposition of Cu-Ni alloy from pyrophosphate electrolytes by pulsating and constant current. Up to Q=10, the permissible current density remains practically unchanged with increasing frequency; with values of Q between 10 and 100, permissible current density decreases with increasing frequency. The duty factor of the pulses has the greatest influence on the process of electrocrystallization of the alloy. Pulsed electrolysis allows a significant intensification of the process of deposition of the alloy. The yield of alloy per current is significantly greater with low duty factors (1.1-2) than when DC is used. The higher the frequency, the greater the yield per current in this case. As duty factor Q increases, the content of nickel in the alloy increases, most sharply between 1.1 and 4. Pulsed electrolysis inhibits electrocrystallization of copper more sharply than nickel, leading to enrichment of the alloy with nickel.

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AA0040726 LITVYAKOVA O.N UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

242344 COOLING FRAME FOR INSIDE CASTINGS composed of parallel members (1) whose compartments (2) are free transversely to form vertical channels; the cross areas of these compartments reduce in stages from the top down starting at the feeder head. This allows directed access of molten metal to parts of the mould furthest from the feeder head. The staged reduction ensures that the lower compartments (a-a) harden first, allowing metal in from the central compartments (2a-a) and so on up.

4.7.66 as 1089813/22-2. VASILEVSKII,P.F.et al.CENTRAL ENGINEERING TECHNOLOGY INST. (11.9.69) Bul 15/25.4.69
Class 31b^2. Int.Cl.B 22d.

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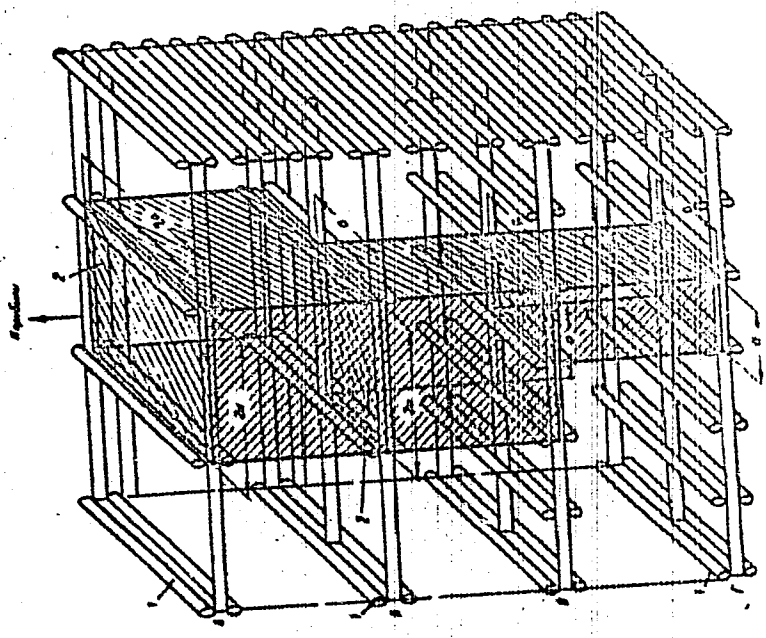

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AUTHORS: Vasilevskiy, P. F.; Kuznetsov, G. A.; Shiryayev, V. V.; Blokhin, I. Ye.; Bel'tsov, P. F.; and Litvyakova, O. N.

Tsentralnyy Nauchno - Issledovatel'skiy Institut Tekhnologii Mashinostroyeniya

19750378

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USSR

LITVAGINA, L. M., KABALKINA, S. S., and VERESHCHAGIN, L. F., Institute of High-Pressure Physics, Academy of Sciences USSR

"Conditions for Formation and Existence of MnF_2 Phase With α-PbO_2 Structure"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 62, No 2, Feb 72, pp 669-672

Abstract: For purposes of studying conditions for the appearance and existence of an α-PbO_2 phase, a detailed study was made of the crystal structure of MnF_2 with an initial rutile-like structure during isothermal pressure reduction from 70 kbars to atmospheric pressure at 400, 300, and 25° C. A high-pressure X-ray camera with external heating was used, making it possible to obtain powder diagrams. NaCl was added to the investigated MnF_2 samples. The following phase transitions were observed: distorted fluorite → fluorite → α-PbO_2 at 300 and 400° C, distorted fluorite → α-PbO_2 at 25° C.

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USSR

LITYAGINA, L. M., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 62, No 2, Feb 72, pp 669-672

To study the possibility of transformation from α-PbO_2 to a fluorite structure, the α-PbO_2 phase obtained by reducing pressure was subjected to the reapplication of high pressure in the same sample. The results indicate transitions in reverse: viz., α-PbO_2 → fluorite → distorted fluorite at 300 and 400° C, α-PbO_2 → distorted fluorite at 25° C. The appearance and existence of the α-PbO_2 phase under these conditions are due to the action of shear stresses which occur in the sample on removal of the load or on reloading.

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FOR LIL...

NAMES

Acc. Nr: AP0101518 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code: UR0195

LIVADONOVA A.B.

120834h Organic peroxide compounds of Group IVB elements. II. Kinetics of the rearrangement of mono- and diarylalkyl hydroperoxides. Yablokov, V. A.; Petrova, S. A.; Livadonova, A. B. (Gor'k. Gos. Univ. im. Lobachevskogo, Gorki, USSR). *Kinet. Katal.* 1970, 11(1), 51-6 (Russ). The study concerns the effect of structure of substituted cumene hydroperoxides (I) on the rate of their rearrangement and the kinetics of rearrangement of *p*- and *m*-diisopropylbenzene dihydroperoxides (II). Rearrangement of I in the presence of H_2SO_4, in AcOH or dioxane, is a 1st order reaction in respect to H_2SO_4 concn. Rate consts. of rearrangements of a series of substituted I, their $\Delta H^{\neq}$ and $\Delta S^{\neq}$ are tabulated. The reactivity agreed with the Hammett equation. A mechanism for II rearrangement is proposed. HMJR

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USSR

UDC 612

LIVANOV, M. N.

"The Problem of Memory"

Moscow, Uspekhi Fiziologicheskikh Nauk, Vol 4, No 1, Jan/Feb/Mar 73, pp 19-30

Abstract: Sequential cross correlations of biocurrents recorded in numerous cortical and subcortical centers in animals with well-established conditioned reflexes were performed, and a comparative analysis with data on short-term memory and trace potentials was obtained in human subjects. On the basis of these, it is proposed that trace processes (in neurons and neuroglia) and memory are two different phenomena. Trace processes represent inertia of brain activity, while memory requires a high degree of brain substrate lability facilitating temporal and spatial synchronization, with formation of peaks in the theta rhythm range in the cortex and a number of subcortical structures. The coding and storage of information consists of consolidation of cortical-subcortical associations. Due to chemical changes taking place at synaptic connections, new synapses are opened, and new cortical-subcortical circuits are put into the functional state.

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LIVANOV, M. N., Academician, Editor

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